

T E C H N O L O G Y F O R

Alaskan Transportation

DOT Statewide Research & Technology Transfer
Local Technical Assistance Program

Spring 2005

Volume 30, Number 1

In this issue . . .

- Aviation Land & Water Survival

Planning, Design, and Field Notes

- Dalton Highway Noxious and Invasive Plant Survey

FHWA Priority Market Ready Technologies and Innovations

- Safe Speeds in Work Zones
- QuickZone

Announcements

- 2005 APWA Snow Conference

Training

- Training and Meetings Calendar Through May

Alaska Transportation History

- Meeting Alaska Transportation Needs for 100 Years

Aviation Land & Water Survival



An afternoon was spent in freezing weather as students learned basic cold weather survival. Jeff Currey works with a partner to practice bandaging and making cold weather boots out of aircraft seat stuffing, carpet, and plastic bags.

Bitter cold, freezing rain, severe winds, murky darkness, and vast expanses make flying in Alaska exceptionally challenging and dangerous. Some areas Alaskans fly are vast with no navigation aids, no radar, no reliable weather reports, and sometimes no communication. When something goes wrong you may be hundreds of miles from civilization, have severe injuries,

limited supplies, and be several days from rescue.

The sobering statistics show aircraft accidents are the leading cause of occupational fatalities in Alaska. Many of these fatalities occur after impact and could have been prevented by proper planning, preparation, and training.

(continued on page 2)

How can you increase your chances of survival?

You increase your chances of survival by reducing disorientation, incapacitating injuries, and the accompanying panic of an aircraft crash landing or ditching. This is accomplished through a training program called Learn to Return, that familiarizes students with escape and post-crash survival tactics.

Several Alaska DOT&PF employees attended a recent aviation survival course to help increase their chances in the event of an aviation accident. The course was facilitated by LTR Training Systems, an aviation land and water survival school based in Anchorage Alaska. LTR delivers survival training worldwide to private firms and government agencies, including the military.



LTR instructor demonstrates how to build a survival shelter by digging a hole in the snow, assembling a crude frame, and using spruce boughs and snow for insulation.



Students sit in the airframe egress unit, preparing to simulate a crash during the land survival course. The same unit is later used in the water egress.



Student exits the simulator to clear the way for other occupants.

What did we learn?

The LTR Training Systems program is conducted in both the classroom and in the field. Employees learned survival tactics through case studies, visual aids and hands-on instruction in land and water escape simulators. These simulators are designed to familiarize students with the seven basic tactics of egress from land or water impacts:

- Practice pre-crash positioning to minimize incapacitating injuries.
- Locate and operate emergency exits.
- Adapt to unplanned occurrences such as locked seat belts, jammed exits, and injured passengers.
- Remove essential equipment during egress.
- Perform escape within limited time span of one air breath.
- Render medical care until help arrives.
- Create shelter for oneself and fellow passengers until help arrives.

During simulations of water crashes, the participants learned that disorientation and confusion occur when an airframe is submerged. The most frequently reported problem occurs as in-rushing water creates a significant escape obstacle. It can force cabin occupants into rear corners where they get trapped, sometime disorientating them so they cannot locate exits.

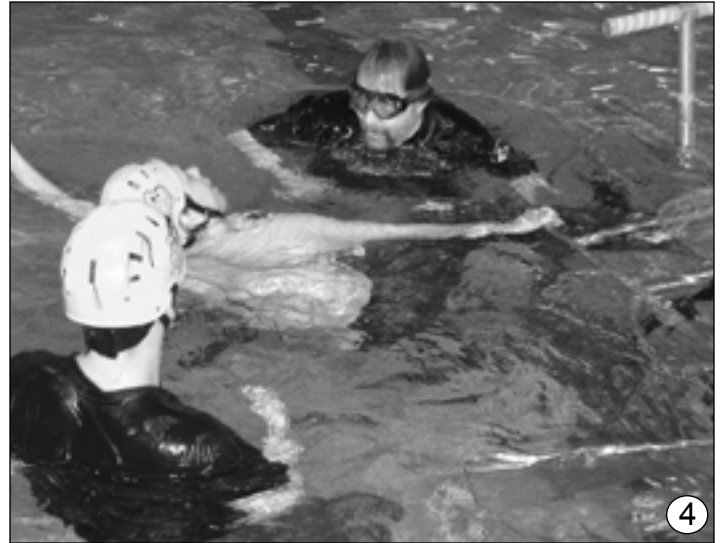
To minimize this problem and promote escape, LTR instructs occupants to

- remain securely strapped in your seat and establish/grasp a reference point,
- stay in your seat and maintain your reference point until all violent aircraft movement ceases,
- gain orientation,
- open existing exits or escape hatches,
- unstrap and exit following the hand used to maintain your reference point.



These four photos show class members tipping the egress unit into the pool. The occupant waits for the unit to settle on the pool bottom before initiating the underwater egress process. Some egresses go smoothly in under a minute, some take longer as students struggle with belts or to gain orientation.

In this photo sequence Mary Pagel prepares herself mentally before beginning this underwater egress. Note her crash position in the second photo as she begins the simulation. Her protruding feet in the last photo indicate she is still securely buckled in after the unit comes to rest and before she begins her egress.



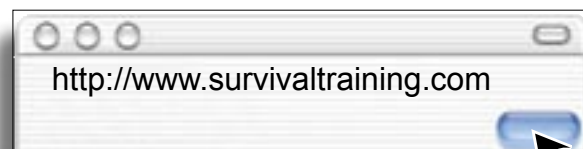
Lead LTR instructor Brian Horner observes as the survivor successfully egresses the simulator

These escape tactics were practiced repeatedly by DOT&PF students in both land and water scenarios. Participants took this training seriously. Several students commented on the intensity and realistic feel of the course and the engaging and informative instructors.

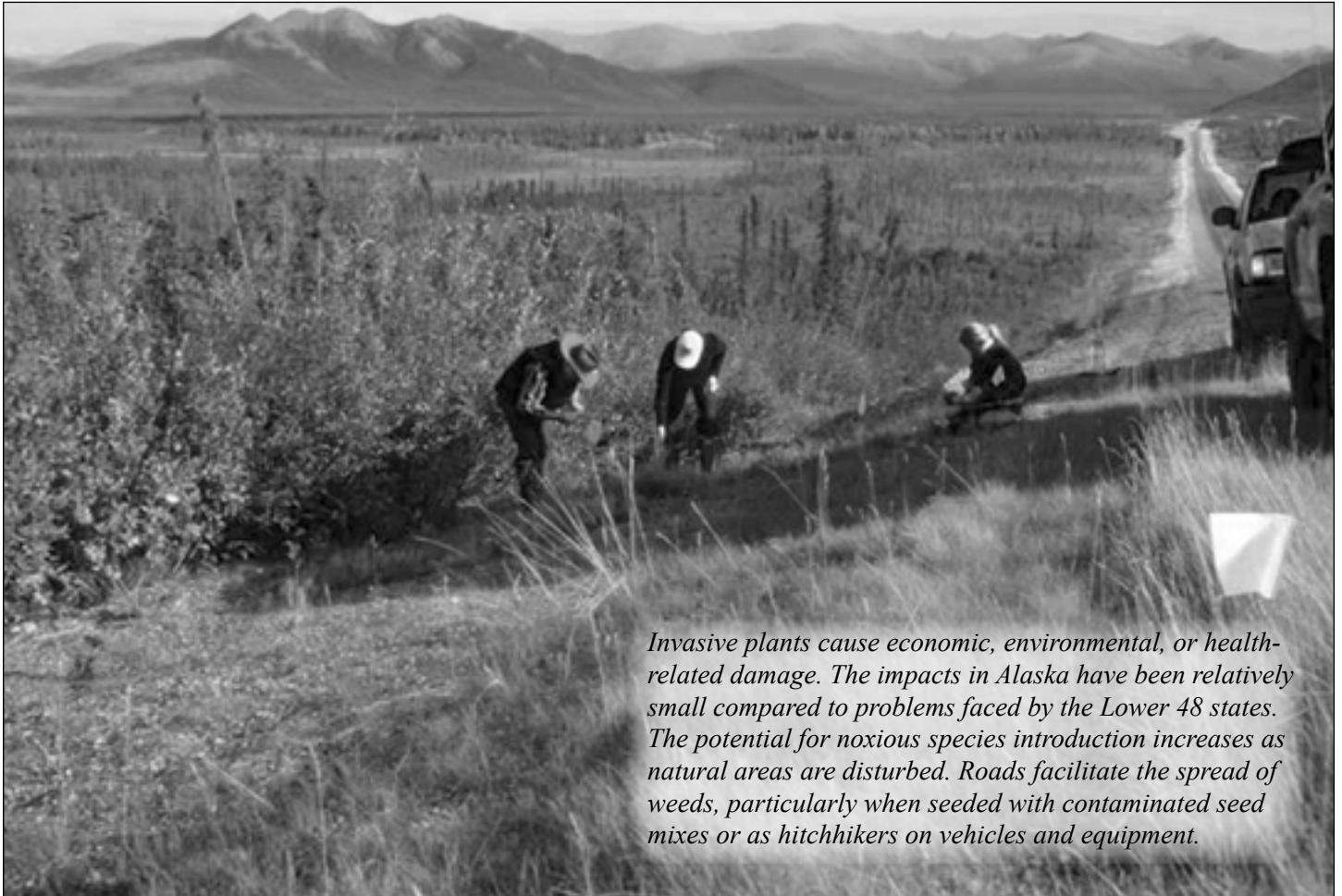
Testimonies from the recent LTR course by DOT&PF employees:

- Thank you for the class. It was great! Great information, great presentation, great instructors, great experience. I have made changes to the way I live life and what I carry with me because of this class. Thank you.
- I believe this training is valuable for anyone who frequently flies. I did not pass the water portion but believe the activity will improve my chances of surviving a crash, even in water.

For more information about LTR Training Systems, Inc., go to:



Dalton Highway Noxious and Invasive Plant Survey



Invasive plants cause economic, environmental, or health-related damage. The impacts in Alaska have been relatively small compared to problems faced by the Lower 48 states. The potential for noxious species introduction increases as natural areas are disturbed. Roads facilitate the spread of weeds, particularly when seeded with contaminated seed mixes or as hitchhikers on vehicles and equipment.



Partnerships Key in Halting Spread

Inventory, monitoring, and control actions must begin now if Alaska is to limit the spread of invasive plants. This study is a demonstration on how agencies can work toward developing plans to halt the spread of invasive plants in the state of Alaska. Management of invasive plants in Alaska presents challenges because of vast acreage and transportation corridors adjacent to lands managed by multiple agencies. Partnerships between state, federal, and private agencies will be crucial to develop and implement a statewide effort to manage invasive species.

(continued)

Planning, Design, and Field Notes

2005



What's the Plan?

The University of Alaska Cooperative Extension Service (CES) and the Bureau of Land Management (BLM) worked together in 2004 to inventory noxious and invasive plants within the Dalton Management Unit (DMU). The findings will be used to develop weed management plans and design educational programs. Michele Hebert and Casie Stockdale with CES, and Ruth Gronquist and Hank McNeel with BLM, conducted the inventory within the DMU.

Project Goals

- Locate noxious and invasive plant species along the Dalton Highway from the Yukon bridge to Galbraith Lake: 219 miles of the highway.
- Describe and map their distributions.
- Evaluate extent of invasive plant intrusion off the highway into surrounding natural areas.
- Identify potential sources of infestations.
- Submit data to Alaska Exotic Plant Information Clearinghouse.
- Develop recommendations for monitoring and control.

Invasive plants affect more than agriculture. It's important that all land managers and agencies know which species are currently in Alaska, their distribution, and the mechanisms by which they are spreading. Inventories, particularly on highways, are necessary to assess impacts, develop management strategies, and to raise public awareness.

Until recently, there have been few studies identifying and mapping the distribution of invasive plants in Alaska. The Alaska Exotic Plant Information Clearinghouse (AKEPIC) Mapping Project, initiated in 2002, is a cooperative agency project to develop a protocol for field data collection and a program for compiling

and creating a GIS-based map of the distribution of exotic plants in Alaska. AKEPIC will help increase the number of surveys being conducted and coordinate inventory efforts.

What Did we Find?

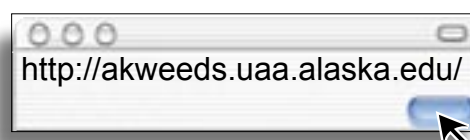
GPS location, infested area, and canopy cover were recorded as defined in the AKEPIC manual. The results of the inventory are listed in Table 1. This inventory is an essential first step that has various potential future uses. It serves as baseline data to be used to monitor the spread of existing and introduction of new exotic and invasive species. Data submitted to AKEPIC is used as a database of exotic species infestation and is used to generate maps of species distributions for researchers, land managers, and the general public. This information can be used to help agencies such as BLM to access economic and social impacts and to develop integrated management plans to control exotic and invasive species. Finally, this data can be used to help raise public awareness and to plan and develop educational programs and community weed pulls. See page 7 for a summary of this data.

For more information visit these web sites:

Alaska Committee for Noxious and Invasive Plants Management:



AKEPIC Mapping Project Inventory Field Data:



Planning, Design, and Field Notes

2005

Table 1. Dalton Roadside Transect Data Summary

Common Name	Scientific Name	Number of Transects Found	Northernmost sample		Farthest distance off highway sampled
No exotic species identified		23			
			Latitude	Longitude	
Common dandelion	<i>Taraxacum officinale</i>	11	67 4 16.78	-150 21 1.31	12m
Foxtail barley	<i>Hordeum jubatum</i> L.	11	68 4 33.51*	-149 35 1.65	10m
White sweet clover	<i>Melilotus alba</i> Medikus	5	66 11 30.00	-150 12 57.46	4m
Knotweed	<i>Polygonum aviculare</i> L.	5	66 15 1.06	-150 19 5.34	4m
Common yarrow	<i>Achillea millefolium</i> L.	4	66 7 19.62	-150 10 0.54	8m
Alsike clover	<i>Trifolium hybridum</i> L.	2	65 59 41.99	-150 31.72	8m
Pineappleweed	<i>Matricaria discoidea</i>	2	66 47 6.15	-150 41 21.90	8m
Annual hawksbeard	<i>Crepis tectorum</i> L.	2	66 47 6.15	-150 41 21.90	10m
Common plantain	<i>Plantago major</i> L.	1	65 57 1.37	-149 55 30.37	4m
Total number of transects sampled:	44				

*north of Coldfoot

Table 2. Dalton Pullout Data Summary (pipeline access roads, river access roads and campgrounds)

Common Name	Scientific Name	Number of Pullouts Found	Northern most sample	
No exotic species identified		17		
			Latitude	Longitude
Foxtail barley	<i>Hordeum jubatum</i> L.	55	68 27 14.47**	-149 28 55.11
Common plantain	<i>Plantago major</i> L.	34	67 49 34.73**	-149 49 42.95
Common yarrow	<i>Achillea millefolium</i> L.	26	68 27 14.47*	-149 28 55.11
Pineappleweed	<i>Matricaria discoidea</i> DC	25	67 46 33.63*	-149 46 54.61
Common dandelion	<i>Taraxacum officinale</i>	20	67.31636*	-150.15718
Knotweed	<i>Polygonum aviculare</i> L.	19	67 44 10.67*	-149 45 18.33
Annual hawksbeard	<i>Crepis tectorum</i> L.	11	66 53 1.87	-150 31 31.51
White sweet clover	<i>Melilotus alba</i> Medikus	7	66 47 29.79	-150 41 14.67
Alsike clover	<i>Trifolium hybridum</i> L.	5	66 23 16.43	-150 30 40.68
Reed canary grass	<i>Phalaris arundinacea</i>	3	67.316.36	-150.15718
Shepherd's purse	<i>Capsella bursa-pastoris</i> L.	2	67.316.36	-150.15718
Lamb's quarters	<i>Chenopodium album</i> L.	2	67 38 45.48*	-149 44 9.15
Common peppergrass	<i>Lepidium densiflorum</i> Schrad	2	66.55627	-150.80809
Yellow toadflax	<i>Linaria vulgaris</i> P. Mill.	2	66.55627	-150.80809
Iceland poppy	<i>Papaver nudicaule</i> L.	1	67.1523	-150.1103
Timothy	<i>Phleum lanceolata</i> L.	1	67.1523	-150.1103
Purple sand spury	<i>Spergularia rubra</i>	1	66.55627	-150.80809
Bird vetch	<i>Vicia cracca</i> L.	1	65 54 47.28	-149 47 46.92
Total number of pullouts sampled:	79			

*north of Coldfoot

**northernmost sample site

FHWA Priority Market-Ready Technologies and Innovations 2005

Safe Speeds in Work Zones

Problem: Speeding in Work Zones Causes Injuries and Fatalities

In 2001, there were 106,000 work zone crashes, accounting for 1.7 percent of all roadway crashes. These crashes resulted in 1,079 work zone fatalities, or an average of three deaths every day. In that same year, 47,000 people were injured in work zone crashes—an average of one injury every 11 minutes. When drivers speed through work zones, crash risks increase.

Why do Drivers Disregard Speed Limit Signs in Work Zones?

Studies show that motorists do reduce driving speeds in work zones—even in work zones with no speed limit reductions—but not to the levels posted. As a source of traffic delays, work zones can cause driver frustration. In addition, sometimes the signs posted in work zones do not accurately reflect the current driving conditions, and drivers learn to disregard them.

Many factors contribute to the lack of credibility for speed limit signing; the most critical factor is that, because of changes in volume, lighting, work activity, weather, and other conditions, the appropriate safe speed changes throughout the day. This is particularly true in highway work zones.

For example, a reduced speed limit when there is no roadwork activity encourages drivers to disregard the speed restriction when workers are present. If the speed signs are not current, they are not credible and will be ignored.



Drivers disregard static signs that don't reflect current driving speeds

Solution: Work Zone Speed Display Technologies Help Manage Safe Speeds

What are work zone speed displays?

Work zone speed displays are intelligent transportation system technologies that give drivers current and accurate information about safe driving speeds. There are several types of work zone speed displays.

Variable Speed Limit (VSL)

VSL systems provide real-time information on appropriate speeds for current conditions and warn drivers of coming road conditions. These systems consist of multiple roadside monitoring and display trailers, each independently powered and controlled. Each speed trailer uses detectors to measure traffic speed and roadway conditions. A microcontroller processes this information along with other inputs, such as nature and duration of roadwork activity, to determine the appropriate speed limit, which is displayed on a trailer-mounted variable speed limit sign. The posted speeds can vary throughout the appropriate safe speed changes throughout the day. work zone,

Putting It in Perspective

In 2001, on average:

- Three people a day died as a result of work zone crashes.
- One work zone crash occurred every five minutes.
- Every day, 130 people were injured in work zones.

FHWA Priority Market-Ready Technologies and Innovations 2005



VSL trailer displays safe speed based on road work and traffic conditions

Speed Feedback

A second type of work zone speed display is the Speed Feedback display, which informs approaching drivers of their current speed and encourages them to slow down if they are traveling above the speed limit. This is a portable display that can be moved to areas where speed is a problem. A maximum display speed is usually set to discourage drivers from competing to post higher speeds on the display.

How Do These Displays Help Reduce Driving Speeds?

Credible speed limits combined with timely advance warnings are essential for improving mobility and safety through work zones. VSL systems overcome many of the problems of static speed limit signs. Because these systems provide real-time information on appropriate speeds for current roadwork conditions, drivers will trust and use VSL information. The Speed Feedback display is effective because it gives drivers immediate feedback on their individual driving speeds. This feedback alerts drivers to specific driving behaviors.



Speed feedback display encourages speeding drivers to comply to posted limit.

Successful Applications: Speed Displays Reduce Vehicle Speeds in Several States

State highway agencies in Iowa, Kansas, Nebraska, and Wisconsin deployed speed feedback signs in rural high-speed work zones as part of the Midwest Smart Work Zone Deployment Initiative. The feedback signs reduced speeds by about 8 kilometers (5 miles) per hour; each 1.6 kilometer (1 mile) per hour reduction in speed may reduce injury crashes by 5 percent. Similar speed reductions have been observed by the Texas Department of Transportation (DOT) in rural, short-term work zones, and by the New Mexico State Highway and Transportation Department in urban work zones.

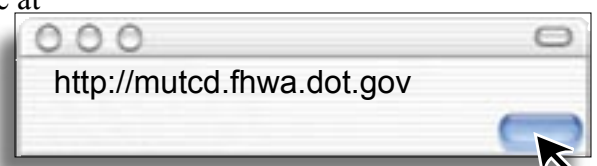
The Michigan DOT deployed a VSL system in one direction within an 29-kilometer (18-mile) work zone on U.S. Interstate 96 during the 2002 construction season. Travel time was reduced through the work zone because higher speeds were posted when appropriate. With the VSL in operation, driving speeds were slower through the work zone median crossover than when a static "50 miles per hour" limit was displayed, suggesting that variable speed limits were more credible. Ten crashes occurred in the direction with static speed limits, compared to only two crashes in the VSL direction.

Benefits

- Work zone speed displays are portable and can be moved to new areas where speed management is needed
- Provide current and credible information to drivers
- Require minimal maintenance

FHWA requires that VSL systems and Speed Feedback displays conform to the national standards described in the Manual on Uniform Traffic Control Devices (MUTCD).

For more information, visit the FHWA MUTCD Web site at



or contact:

Dave Warren, FHWA Office of Safety
202-366-4668

E-mail: davey.warren@fhwa.dot.gov

FHWA Priority Market-Ready Technologies and Innovations 2005

QuickZone

Problem: Work Zones Contribute to Traffic Delays

According to a survey released by the Federal Highway Administration (FHWA), travelers view road repairs as a major contributor to traffic delays and believe that improvements in traffic flow, pavement conditions, and work zones can enhance driver satisfaction significantly. Despite these findings, with the exception of a few high-visibility freeway construction and re-furbishment projects, project planners typically do not consider the soft cost of traveler delay when making key decisions about project staging and duration.

The 1998 FHWA report *Meeting the Customer's Needs for Mobility and Safety During Construction and Maintenance Operations* highlighted this issue and recommended developing an easy-to-master analytical tool to quickly and flexibly estimate and quantify work zone delays in all four phases of the project development process (policy, planning, design, and operations). The result was a traffic delay estimation tool called QuickZone, which is designed for state and local traffic construction, operations, and construction planning contractors.

Putting It in Perspective

- Work zones account for nearly 24 percent of nonrecurring congestion, which translates to 482 million vehicle hours of delay per year.
- The four main causes of nonrecurring congestion are crashes, weather, work zones, and breakdowns.

Solution: Reducing Work Zone Delays With Quickzone

What is Quickzone?

QuickZone is a traffic impact analysis tool that can be used to estimate work zone delays. For example, QuickZone allows road owners and contractors to compare the effects of doing highway work at night instead of during the day or of diverting the traffic to different roads at various stages of construction. These effects can be estimated for periods as short as one day or for the entire life of the construction project. QuickZone provides an easy-to-use, easy-to-learn tool that

takes advantage of software tools that are familiar to the target user base.

How does Quickzone Work?

QuickZone is an open source, Microsoft®-based application suitable for urban and interurban corridor analysis. QuickZone can:

- Quantify corridor delay resulting from capacity decreases in work zones.
- Identify delay impacts of alternative project phasing plans.
- Support tradeoff analyses between construction costs and delay costs.
- Examine the impacts of construction staging by location along mainline, time of day (peak vs. off-peak), and season (summer vs. winter).
- Assess travel demand measures and other delay mitigation strategies.
- Help establish work completion incentives.

Quickzone runs on a personal computer, furnishing the information in spreadsheet format. The system prompts users for the data needed to perform the necessary calculations. QuickZone can compare the traffic impacts for work zone mitigation strategies and estimate the costs to motorists in terms of delays and potential backups associated with different strategies or scenarios.

To operate effectively, QuickZone requires:

- Network data: Node data (X-Y coordinates), link data (capacity, length).
- Demand data: Average daily travel, daily and seasonal distributions.

Successful Applications: Decreasing Delay in Pennsylvania

In summer 2002, motorists on U.S. Interstate 80 (I-80) in Clarion County, PA, experienced significant delays and frustrations caused by traffic backups in highway work zones, and the Pennsylvania Department of Transportation (PENNDOT) received complaints. In response, before beginning a resurfacing project on I-80 in Butler and Clarion Counties, PENNDOT's District 10 turned to QuickZone.

continued on back page

Training and Meeting Calendar

2005

NHI 310110A: Federal Aid Highway 101 (State Version)

April 11–12 in Anchorage

NHI 137024A: Introduction to Systems Engineering for Advanced Transportation

April 14–15 in Anchorage

Traffic Control Technician (TCT)

April 18 in Anchorage

Traffic Control Supervisor (TCS)

April 19–20 in Anchorage

Flagger Instructor Training (FIT)

April 21–22 in Anchorage

NHI 135080A: Hydrologic Analysis and Modeling with WMS

April 26–28 in Anchorage

Competent Fall Protection Person & Competent Fall Protection Person Refresher Training

April 25–29 in Anchorage

This course is not sponsored by DOT.

May

Construction Dewatering Seminar

May 11 in Anchorage

May 12 in Fairbanks

The Roles of Treatment Wetlands

May 11–13 in Anchorage

(A non-DOT sponsored event)

Environmentally Sensitive Streambank Stabilization

May 23–25 in Fairbanks

NHI 142018A: Functional Assessment of Wetlands

May 31–June 3 in Fairbanks

For information about T2-sponsored training, contact:

Dave Waldo at

907-451-5323,

david_waldo@dot.state.ak.us

or

Simon Howell at

907-451-5482,

simon_howell@dot.state.ak.us

or go to:

www.dot.state.ak.us

Meetings Around Alaska

Society	Chapter	Meeting Days	Location & Contact
ASCE	Anchorage Fairbanks Juneau	Monthly, 3rd Tues., noon Monthly, 3rd Wed., noon Monthly, 2nd Wed., noon*	Moose Lodge Captain Bartlett Inn Breakwater Restaurant * except June–Aug.
ASPE	Anchorage Fairbanks Juneau	Monthly, 2nd Thurs., noon* Monthly, 1st Fri., noon Monthly, 2nd Wed., noon**	Coast International Inn Captain Bartlett Inn Westmark Hotel Jennifer Gibson, 343-8130 * except summer ** except June–Aug.
ASPLS	Anchorage Fairbanks Mat-Su Valley	Monthly, 3rd Tues., noon Monthly, 4th Tues., noon Monthly, last Wed., noon	Sourdough Mining Co. 5200 Juneau st. Westmark Hotel Windbreak Cafe George Strother, 745-9810
AWRA	Northern Region	Monthly, 3rd Wed., noon	Rm 531 Duckering Bldg., University of Alaska Fairbanks Larry Hinzman, 474-7331
ICBO	Northern Chapter	Monthly, 1st Wed., noon except July and August	Zach's Sophie Station Tom Marsh, 451-9353
ITE	Anchorage	Monthly, 4th Tues., noon**	Sourdough Mining Co. Art Johnson, 276-4245 ** except July, Nov., & Dec.
IRWA	Sourdough Ch. 49 Arctic Trails Ch. 71 Totem Ch. 59	Monthly, 3rd Thurs., noon** Monthly, 2nd Thurs., noon** Monthly, 1st Wed., noon	West Coast International Inn Zach's Sophie Station Mike's Place, Douglas ** except July & Dec.
Asphalt Pavement Alliance	Alaska	3rd Wednesday of every other month	varies John Lambert 267-5294
PE in Government	Anchorage	Monthly, last Fri., 7 a.m.	Elmer's Restaurant
Society of Women Engineers	Anchorage	Monthly, 1st Wed. 5:30 p.m. except July and August	DOWL Engineers Julie Gaken, 269-0634



Meeting Alaska Transportation Needs for 100 Years

January 27, 1905–January 27, 2005

Commemorating 100 Years of Serving Alaskans' Transportation Needs

Letter from the Governor

Dear Alaskans,

When President Teddy Roosevelt signed legislation creating the Alaska Road Commission on January 27, 1905, he set in motion a means by which the federal government would facilitate expansion and settlement of the Alaska territory for the next 50 years.

Prior to that time, our economy was tied to waterborne transportation. Like so much of the rest of America, our towns and communities were established where they had access to sea-going shipping. Often in Alaska, valuable natural resources that were inaccessible by ship were not developed. Some mineral deposits, such as the Kennicott copper ores, became possible to develop only after the construction of a railroad.

At the turn of the last century, it became clear that a network of a couple of short railroads and various riverboat routes connecting to crude dog-sled trails were not enough to build a civilization and an economy upon. Congress responded by enacting the ARC.

Between 1905 and 1956, the ARC moved a lot of dirt, sand and rocks, first with Model T trucks and steam shovels. With the advancement of technology and better equipment, the roads gradually improved from narrow, winding pathways across the tundra to safe, paved high-speed roads. Real highways.

Today's Alaskans are forever indebted to the men and women of the Alaska Road Commission for laying the rock foundation for our modern network of highways. It is wholly appropriate that we recognize their accomplishments on the occasion of the 100th anniversary of President Roosevelt's signature on the bill that created the ARC—and look toward the future of extending that road system.

Governor Frank H. Murkowski



In 1903, Congress appointed a committee of four senators to investigate Alaska's "existing conditions, her resources and needs, with the purpose to ascertain and report what, if any, legislation is required for that district." This action was taken at the request of the growing mining industry in Alaska, which desired to have an all-American route to the interior gold fields, in order to avoid border disputes with Canada.

The result of this congressional investigation was legislation, signed on January 27, 1905, by President Theodore Roosevelt, which created a Board of Road Commissioners and an "Alaska Fund." The Alaska Fund was made up of revenues from liquor licenses and occupational and trade licenses outside the incorporated areas of Alaska. While 25 percent of the revenue was dedicated to the establishment and maintenance of public schools, at least 70 percent was to be "devoted to the construction and maintenance of wagon roads, bridges and trails" in Alaska. The remainder, up to 5 percent, was devoted to mental health.

The original Alaska Road Commission was housed under the Secretary of War, and its three members were officers in the U.S. Army. Based in Valdez, they were assigned the truly daunting task of assessing the transportation needs of a vast territory and working toward the goal of constructing roads and connecting communities—at that time, mostly mining communities.

Alaska Transportation History

2005

Constructing a usable road out of the trail from Valdez to Fairbanks became the ARC's first major project. It was later named the Richardson Highway, after the first presiding officer of the Board of Road Commissioners, Major Wilds P. Richardson, 9th Infantry.

From its humble beginning in 1905, the ARC served the Alaska territory for more than 50 years, until 1956, when its employees and mission were transferred to the Bureau of Public Roads in the U.S. Department of Commerce.

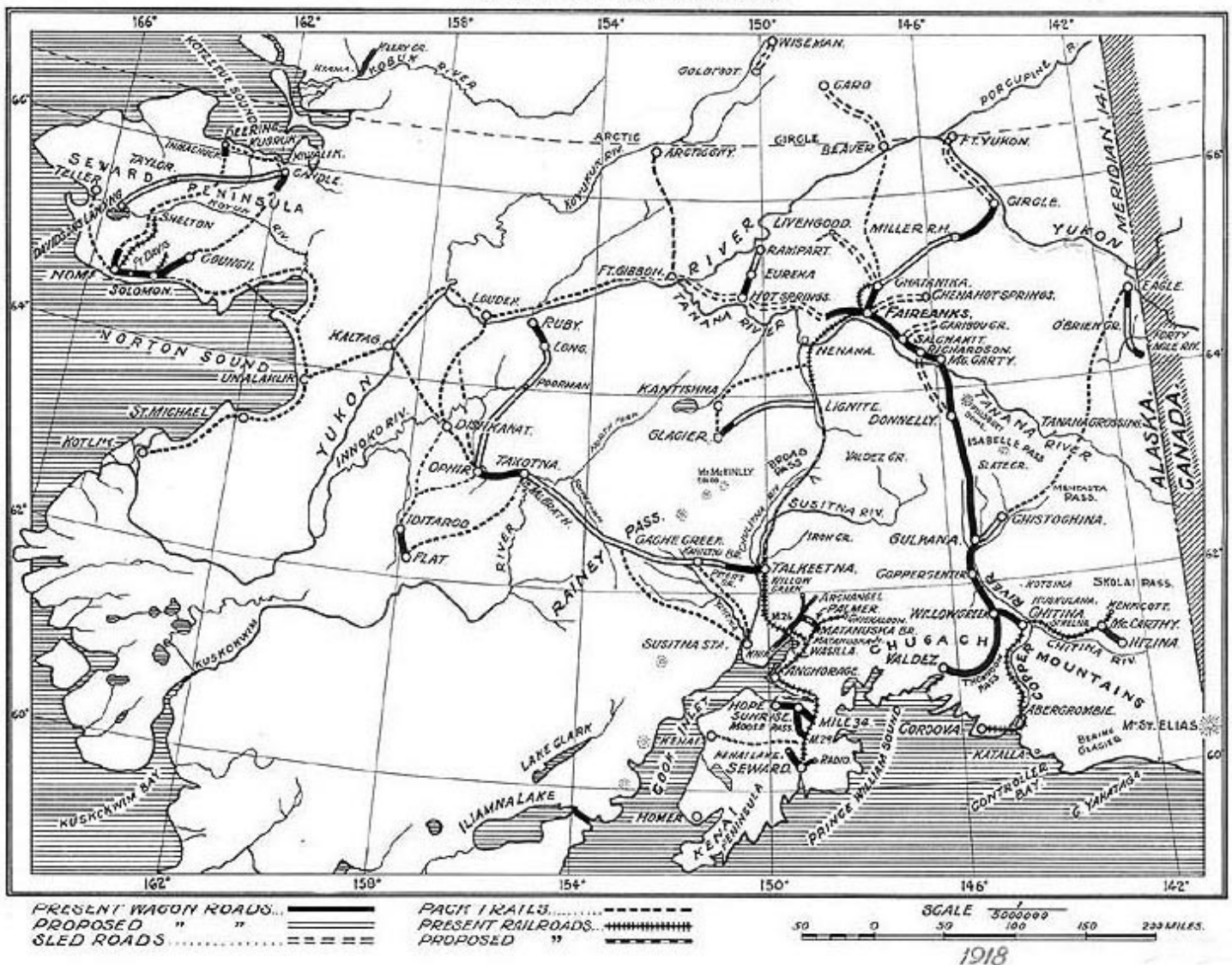
During that period of time, the ARC built major roads throughout Alaska, including the Glenn Highway (1942), the Seward Highway (1920s), the Taylor Highway (1946–53), and the Steese and Elliott Highways. The ARC planned the Parks Highway and began



Colonel Wilds Richardson and staff.

(continued on next page)

MAP OF ALASKA.



Map of Alaska, 1918, showing wagon roads, sled roads, pack trails, and railroads present at that time, as well as indicating proposed roads and railroads.

Alaska Transportation History

2005

its construction in 1956. Many of these routes started out as dogsled trails and were gradually upgraded, widened, and eventually paved. The Alaska Highway, constructed by the military during the war, was turned over to the ARC for operation and maintenance in 1944.

After Alaskans achieved statehood in 1959, the majority of the road network was transferred to the state, where it was maintained and operated by the new Department of Highways. The successor agency to this series of road and highway agencies is, of course,



Beginning of the Edgerton Cutoff of the Richardson Highway near Chitina on the CR&NWR, 131 miles from Cordova.



Alaska Road Commission warehouse and office building in Fairbanks.



Adams grader and Caterpillar tractor working outside Fairbanks, 1928.



Alaska Road Commission teams passing Camp Comfort en route to Valdez after their season's work.

Alaska Transportation History

2005

the Alaska Department of Transportation and Public Facilities, so named in 1977 when the Department of Highways was merged with the Department of Public Works.



Bridge and Alaska Railroad over Resurrection River, near Seward.



Gravel shovel near Richardson Highway.



Jarvis Creek Bridge, Richardson Highway south of Delta Junction.

Today, DOT&PF is a multifaceted, full-service department of state government, maintaining more than 5,000 miles of highways, managing 258 airports and 47 harbors, operating a ferry system of ten vessels covering 3,500 nautical miles and 33 ports, and managing more than 700 buildings, from bunkhouses to courthouses.

This is the legacy of the ARC, and the men and women who dedicated their labor, innovation, and talents to it, who laid the foundation across Alaska for the transportation system we enjoy today.

It is a privilege to celebrate the 100th anniversary of President Roosevelt's signing of the Act of Congress creating the Alaska Road Commission, and to honor the employees of the ARC and its successor agencies.



The old temporary town of Wasilla on day of lot sale, June 1917.



Birch Creek bridge on Steese Highway.

QuickZone (continued from page 10)

QuickZone helped engineers model different work zone configurations before implementing them on the highway. Applying the software to the I-80 project, PENNDOT engineers were able to select work zone configurations and construction schedules that met project needs while minimizing impacts to the traveling public. Based on the reduced number of complaints and the length of time motorists experienced delays in the work zone, PENNDOT believes the effort was a success. "We are very pleased with the results of QuickZone modeling," said Richard H. Hogg, professional engineer and District 10 executive. "Based on what we saw occur on the interstate last year compared to this year, the improvements for our customers, the traveling public, are significant."

Benefits

- Graphic and tabular outputs.
- Low software and hardware operating requirements.
- User-friendly.
- Effective at reducing work zone delays

Additional Resources

To purchase QuickZone, visit www-mctrans.ce.ufl.edu or www.kutc.ku.edu/pctrans. The cost is \$195.

For more information, contact:

Scott Battles, FHWA Office of Operations

Phone: 202-366-4372

E-mail: scott.battles@fhwa.dot.gov

Deborah Curtis, FHWA Office of Operations R&D

Phone: 202-493-3267

E-mail: deborah.curtis@fhwa.dot.gov



T² Center Staff

Dave Waldo, Manager & Editor, 907/451-5323,
david_waldo@dot.state.ak.us

Simon Howell, Training Specialist, 907/451-
5482, simon_howell@dot.state.ak.us

Linda Gavin, Administrative Clerk,
907/451-5320, linda_gavin@dot.state.ak.us

T² Center Advisory Board

Billy Connor, Chair, Research Manager,
DOT&PF

Chris Haigh, City of Fairbanks

Steve Boch, Federal Highway Administration

Jack Fullerton, Central region DOT&PF

Trent Mackey, Fairbanks North Star Borough

Lee Coop, Municipality of Anchorage

Don Shiesl, Mat-Su Borough

Jacob Kagak, North Slope Borough

Joe Buck, City and Borough of Juneau

vacant, Yukon Territory Government

Keith Kornelis, City of Kenai

<http://www.dot.state.ak.us>

- rest the cursor on "Programs, Plans & Projects"
- select "Research & Technology"



This newsletter is funded by the Federal Highway Administration and the Alaska Department of Transportation and Public Facilities. The material contained herein does not necessarily reflect the views of the Alaska Department of Transportation, Federal Highway Administration, or the T² staff. Any reference to a commercial product or organization in this newsletter is only for informational purposes and is not intended as an endorsement.

PRESORTED STANDARD
U.S. Postage PAID
Fairbanks, AK
Permit No. 87



*Local Technical Assistance Program
Department of Transportation and Public Facilities
2301 Peger Road M/S 2550
Fairbanks, AK 99709-5399*

Return Service Requested